

1 **Q. WHAT IS A TYPICAL METHOD USED TO CALCULATE BETA?**

2 A. Beta is typically calculated by a procedure called regression analysis. In regression
3 analysis, the returns on the subject stock (the dependent variable), are regressed against
4 the returns of a market portfolio of stocks (frequently the S&P 500) to estimate
5 statistically the degree that the independent variable movements in the market portfolio
6 have caused the returns of the subject company. Using this statistical tool, therefore,
7 the sensitivity of a stock to movements in the market can be estimated. This sensitivity
8 is what determines beta.

9 **Q. WHAT SOURCE FOR BETA HAVE YOU USED FOR YOUR ANALYSIS?**

10 A. In prior testimonies, using data before June 30, 2000, I calculated betas based on five
11 years of monthly return data for Bell Atlantic and the comparable companies.
12 However, given Bell Atlantic's merger with GTE which became effective June 30,
13 2000, I use BARRA predicted betas because a 5-year historical beta cannot be
14 calculated for the newly-formed Verizon.

15 BARRA (formerly Rosenberg Associates) is an internationally known financial
16 consulting firm providing risk measurement services to investment managers,
17 corporations, consultants, securities dealers and traders, and master custodians. The
18 predicted betas are developed using sophisticated financial modeling techniques which
19 account for factors which impact the future risk of a company. Unlike conventional
20 regression betas, therefore, the BARRA betas do not rely solely on historical stock
21 returns and explicitly consider forward-looking projections. According to BARRA

1 studies, BARRA predicted betas have more than 16 times the predictive power of
2 historical betas.²⁰

3 Because beta is measured with error, the average beta over all the comparables
4 is probably a more accurate indicator of the true beta than any individual estimate of
5 beta. For this reason I averaged historical unlevered betas in studies which used data
6 prior to Bell Atlantic and GTE's merger, and I continue that practice using BARRA
7 betas in this study.

8 Before averaging individual betas it is necessary to take account of the fact that
9 the various comparable companies have differing amounts of debt in their capital
10 structures. The amount of a company's debt leverage affects the riskiness of its stock
11 returns and thereby its beta. The raw betas (i.e., predicted betas obtained from
12 BARRA) are "unlevered" using standard financial economic formulas and based on the
13 market value debt/equity ratios of each respective company as of June 30, 2000. The
14 formula for "unlevering" a raw, or "levered" beta is,

$$B_u = B_L / [1 + (1 - T_c) \times D/E] \quad (4)$$

16 where,

17 B_u = the "unlevered" beta,

18 B_L = the "levered" beta,

19 E = the value of the sample company's equity;

20 T_c = the corporate tax rate (typically an average rate for the sample);

²⁰ Barr Rosenberg, "Prediction of Common Stock Betas", Reprinted with permission from The Journal of Portfolio Management, Winter, 1985, on www.Barra.com/ResearchPub/NonBarraPub/pocs/pocs-j.html.

1 D = the value of the sample company's debt.

2 This puts all the betas on comparable terms so that they can be averaged.

3 Once the average has been estimated, the beta for any individual company is
4 estimated by "re-levering" using a simple variant of formula (4) which solves for B_L ,
5 the "levered" beta.

6 **Q. WHAT IS YOUR ESTIMATE OF BETA?**

7 A. The BARRA predicted (levered) estimates of beta are presented in Attachment JH-5.

8 They vary from a high of 0.84 to a low of 0.65 on a levered basis. As I discussed
9 above, however, the betas must be unlevered first to adjust for the different amount of
10 debt leverage employed by the individual companies before calculating an average.

11 Attachment JH-5 also shows the unlevered betas and their average. The average
12 unlevered beta for the entire sample is 0.63.²¹ The average unlevered beta is re-levered
13 using the formula discussed above to take Verizon's June 30, 2000 capital structure
14 into account, arriving at a beta of 0.77 for Verizon.

15 **Q. HOW DOES THE BETA RISK OF THE COMPANIES IN YOUR SAMPLE**
16 **COMPARE WITH THE BETA RISK OF COMMON STOCK GENERALLY?**

17 A. By definition, the beta of all common stock generally (in other words, the beta of the
18 market) is 1.0. Therefore, it appears that the beta of telephone stocks used in the
19 sample is less than that of common stocks generally. This means that investments in
20 the sample telephone company stocks are less risky than investments in typical

²¹ Note that the judgmental weighting which I utilized in estimating the average DCF cost of equity is not necessary because betas can be unlevered to adjust for the capital structure leverage of the companies in the sample.

1 industrial companies. Consequently, the cost of capital for telephone companies

2 should also be less than it is for the average industrial stock.

3 **Q. WHAT IS THE MARKET RISK PREMIUM?**

4 A. The risk premium on the market is the amount of added expected return that investors
5 require to hold a broad portfolio of common stocks (a proxy for the market as a whole)
6 instead of risk-free Treasury securities.

7 **Q. WHAT TREASURY SECURITIES ARE USED TO MEASURE THE RISK**
8 **PREMIUM?**

9 A. Because there are over 100 issues of Treasury securities, some convention is required.
10 Commonly, the risk premium is measured over both short-term Treasury bills with a
11 maturity of one to three months and long-term Treasury bonds with a maturity of 10 to
12 30 years. In this study, I use one-month Treasury bills and 20-year Treasury bonds
13 using Ibbotson Associates' and Jeremy Siegel's data going back to 1802.

14 **Q. HOW IS THE MARKET RISK PREMIUM ESTIMATED?**

15 A. The market risk premium can be estimated two ways. First, the DCF approach can be
16 applied to the market as a whole to arrive at a forward-looking estimate of the market
17 risk premium. Second, the premium can be estimated by examining historical data on
18 the difference between the return on a broad portfolio of common stocks and associated
19 Treasury securities.

20 **Q. HOW CAN THE DCF MODEL BE USED TO ESTIMATE THE MARKET**
21 **RISK PREMIUM?**

1 A. Two steps are required to estimate the market risk premium using the DCF model. The
2 first step is to compute the DCF expected return (another word for the cost of equity)
3 for the market as a whole. Deducting the risk-free rate from the expected return gives
4 the market risk premium.

5 **Q. IN THE PAST, HOW HAVE YOU CALCULATED A DCF ESTIMATE OF THE**
6 **EXPECTED RETURN ON THE MARKET?**

7 A. The starting point that I utilized for estimating the expected return on the market was
8 the S&P 500 index as a proxy for the market. I limited the sample to those S&P 500
9 companies that paid a dividend of at least 1.5% on the grounds that the DCF approach
10 may be less accurate for companies that pay small dividends.²² This sample included
11 large companies for which the data is considered to be reliable for purposes of DCF
12 estimates. For the selected companies, the three-stage DCF model was applied in the
13 same fashion as it was applied to the sample of telephone companies. Finally, the
14 individual DCF estimates for the sample companies were averaged on a market-value
15 basis.

16 **Q. HAVE YOU PERFORMED THIS RETURN ON THE MARKET**
17 **CALCULATION FOR DATA THROUGH JUNE 30, 2000?**

18 A. No. In prior testimonies, I would compare my DCF results to Merrill Lynch's
19 expected return on the market estimate as a test of reasonableness. For example, as of
20 September 30, 1999, I estimated the DCF return on the market to be 9.55%, while as of

1 December 1999 Merrill Lynch's expected return on the market estimate was 9.80%.

2 Given the relative cost and degree of difficulty of obtaining data for, and updating the
3 calculation of, the DCF return on the market frequently, and given that Merrill Lynch's
4 calculation techniques appear to result in slightly higher estimates, I have elected to use
5 Merrill Lynch's estimate as a reasonable substitute for use in this study. As of June 30,
6 2000, Merrill Lynch's expected return on the market estimate was 10.20%.

7 **Q. GIVEN THE EXPECTED RETURN ON THE MARKET, HOW DO YOU**
8 **CALCULATE THE MARKET RISK PREMIUM?**

9 A. The market risk premium is computed by subtracting the risk-free rate from the
10 expected return. In the case of the 20-year Treasury bond this is straightforward. The
11 calculations are shown in Attachment JH-6. The Attachment shows that as of June 30,
12 2000, the 20-year bond yield was 6.26 percent. Subtracting 6.26 percent from 10.20
13 percent gives a market risk premium over long-term Treasury bonds of 3.94 percent.

14 In the case of one-month Treasury bills the situation is more complicated.
15 Because the goal of the analysis is to estimate the long-run cost of capital, using a one-
16 month interest rate can be misleading. A more appropriate choice is the average return
17 on one-month Treasury bills that is expected to obtain over the long-term. This can be
18 estimated using the following two-step procedure. First, compute the long-run
19 historical difference between the return on one-month Treasury bills and the return on
20 20-year Treasury bonds. Second, subtract that historical difference from the current

²² With the increase in the equity values of S&P 500 companies, the dividend yield calculations produced lower results than in previous years, even though no reduction in dividends

1 yield on 20-year bonds. The difference gives a forward-looking market estimate of the
2 average expected yield on one-month Treasury bills over the next 20 years. Attachment
3 JH-7 shows that the average expected one-month Treasury bill rate over the long run is
4 4.93 percent as of June 30, 2000. Subtracting this rate from the expected return on the
5 market gives a market risk premium over Treasury bills of 5.27 percent as shown in
6 Attachment JH-6.

7 **Q. WHAT ISSUES ARE INVOLVED WITH RESPECT TO HISTORICAL**
8 **ESTIMATES OF THE MARKET RISK PREMIUM?**

9 A. The historical risk premium is defined as the historical difference between the return on
10 the stock market and the risk-free rate. The proper estimate of the historical market
11 risk premium is a question that is disputed among both academics and practitioners
12 with regard to two primary issues. First, when analyzing historical data, should an
13 arithmetic or geometric average be used to calculate the historical average risk
14 premium? Second, over what period should the average be computed to accurately
15 capture the risk premium expected in the future? Specifically, should the entire sample
16 period back to 1802 be used, should the sample period be limited to post-1926 when
17 more complete data became available, should only post-war data be employed because
18 the role of government in the economy has changed fundamentally since the great
19 depression, or should even more recent data be used? With regard to the type of
20 average, many academic authors favor the arithmetic over the geometric.²³ Others,

occurred. The market-value-weighted average dividend yield of the market is about 1.5%. Therefore, I considered a 1.5% cut-off to be reasonable.

²³ Bodie, Zvi, Alex Kane, and Alan J. Marcus, *Investments*, Irwin, 1993, pp. 800-801.

1 however, recommend using the geometric average because arithmetic averages are
2 biased by the measurement period, and because empirical studies of stock market
3 returns show negative serial correlation of returns over time. Damodaran states that
4 “[i]n the context of valuation, where cash flows over a long time horizon are
5 discounted back to the present, the geometric mean provides a better estimate of the
6 risk premium.”²⁴ With regard to the sample period for computing the average risk
7 premium, Ibbotson Associates argues that a long data series is required so that the
8 equity risk premium is not unduly influenced by very good or very poor short-term
9 results. The 2000 Yearbook published by Ibbotson Associates suggests that the post-
10 1926 data compiled therein provides a representative period of returns that can occur
11 under diverse economic circumstances.²⁵

12 **Q. HAS THE USEFULNESS OF HISTORICAL RISK PREMIA BEEN**
13 **QUESTIONED BY ACADEMICS?**

14 A. Yes, for many reasons. For example, Roger Ibbotson himself has cautioned that the
15 long-run stock market returns calculated by his firm may not prove predictive. He has
16 stated that the U.S. is not as risky as it was in 1925, suggesting that lower returns will
17 be experienced in the future.²⁶ Roger Ibbotson also states that historical averages

²⁴ Damodaran, Aswath, *Damodaran On Valuation: Security Analysis for Investment and Corporate Finance*, John Wiley & Sons, 1994, at p. 22.

²⁵ Stocks, Bonds, Bills and Inflation, 2000 Yearbook, Valuation Edition, Ibbotson Associates, Chicago, Illinois, p. 66.

²⁶ Clements, Jonathan, "Getting Going, Keeping Perspective: Lower Expectations May Bring Happier Long-Term Results", *The Wall Street Journal*, November 26, 1996. See also, Ibbotson, Roger G., and Gary P. Brinson, *GLOBAL INVESTING: The Professional's Guide to the World Capital Markets*, McGraw Hill, Inc., New York, 1993, pg. 171.

1 overstate the forward-looking cost of equity because of survivorship bias.²⁷ For
2 example, the U.S. stock market survived despite the Great Depression. As of 1925,
3 however, there existed a risk that the stock market would be entirely wiped out—as
4 happened in Germany, Japan, China and Russia. If these countries were included in an
5 average, historical returns would be much lower.²⁸

6 Based on an analysis of data going back to 1802, Siegel presents convincing
7 evidence that the risk premium was abnormally high after the U.S. went off the gold
8 standard resulting from unanticipated inflation which reduced the real returns on
9 bonds. He notes that the current equity premium appears to be returning to the 2 - 3
10 percent range that existed before the second world war.²⁹ Blanchard also presents
11 evidence that the risk premium has declined to 2 to 3 percent in recent years and argues
12 that either the DCF approach should be employed in place of relying on an average or
13 more recent data should be used.³⁰

14 Similarly, Rappaport opposes the use of long-term averages. He states that the
15 relative risk of bonds has increased over the past two decades, thereby lowering risk
16 premiums to a range from 3 to 5 percent.³¹ More recently, the Wall Street Journal
17 noted that traditional measures of value are failing to explain current stock prices in

²⁷ *Ibid.*

²⁸ Brown, Stephen J., William N. Goetzmann and Stephen A. Ross, "Survival", *The Journal of Finance*, Vol. L, No. 3, July 1995.

²⁹ Siegel, Jeremy, *Stocks for the Long Run*, Irwin, New York, 1994. See also, Siegel, Jeremy J., "Risk and return: start with the building blocks", *The Financial Times*, May 12, 1997.

³⁰ Blanchard, Oliver, "Movements in the Equity Premium", *Brookings Papers on Economic Activity*, 75 (2) 1993.

³¹ Rappaport, Alfred, *Creating Shareholder Value*, The Free Press, New York, 1998.

1 part because, “the so-called risk premium has declined, as investors become more
2 comfortable holding stocks.”³² Glassman and Hassett, American Enterprise Institute
3 scholars, argue that over the long-run stock actually have been no riskier than bonds,
4 and consequently, long-term investors should demand no extra premium for holding
5 stock.³³

6 In light of these questions, Attachments JH-6 and 8 present both DCF estimates
7 of the market risk premium and historical averages computed using both arithmetic and
8 geometric averages calculated over various periods of time.

9 **Q. GIVEN THE INFORMATION IN ATTACHMENTS JH-6 AND 8, WHAT IS**
10 **THE BEST MEASURE OF THE MARKET RISK PREMIUM?**

11 A. Taking account of all the information in Attachments JH-6 and 8, and the extensive
12 research and views of academics and practitioners, I conclude that the reasonable
13 estimates of the market risk premium are 7.5 percent over one-month Treasury bills and
14 5.5 percent over 20-year Treasury bonds. These estimates are conservative (i.e., on the
15 high side) in the sense that they are above the average premiums observed in half of the
16 periods, including the full sample, and are greater than those implied by the DCF
17 analysis. This is also conservative given the substantial number of views of both
18 academics and practitioners that the risk premium is now quite low.

³² Clements, Jonathan, “Value Judgment: Getting a Handle on Stocks’ Worth,” *Wall Street Journal*, January 11, 2000.

³³ See, e.g., Glassman, James K. and Kevin A. Hassett, “Are Stocks Overvalued? Not a Chance.” *Wall Street Journal* (March 30, 1998) (“the [downward trend in the] risk premium required by shareholders . . . may not be over”).

1 **Q. GIVEN YOUR ESTIMATES OF BETA AND THE MARKET RISK PREMIUM**
2 **WHAT IS THE APPROPRIATE ESTIMATE OF THE COST OF EQUITY**
3 **CAPITAL?**

4 A. To review, the CAPM says that,

5
$$\text{Cost of equity capital} = \text{Risk-free rate} + \text{Beta} * \text{Market risk premium}.$$

6 Applying this equation using the long-run, expected, one-month Treasury bill rate as
7 the measure of the risk free rate gives:

8
$$\text{Verizon's Cost of equity capital} = 4.93\% + 0.77 * 7.5\% = 10.71\%.$$

9 Notice that in the preceding equation the expected long run Treasury bill rate over the
10 next 20 years is used, not the current one-month Treasury bill rate.

11 Applying the CAPM equation using the 20-year Treasury bond as the measure
12 of the risk free rate gives:

13
$$\text{Verizon's Cost of equity capital} = 6.26\% + 0.77 * 5.5\% = 10.50\%.$$

14 In light of these results, I use the average of the two as the CAPM estimate of the cost
15 of equity capital: **10.60** percent for Verizon.

16 **Q. HOW DO YOUR CAPM RESULTS COMPARE WITH YOUR DCF**
17 **ESTIMATES OF THE COST OF EQUITY CAPITAL?**

18 A. The CAPM-derived costs of equity differ by less than 40 basis points from the DCF
19 costs of equity. Given the difficulty of estimating the cost of equity capital, I take an
20 average of the two methods (*see* Attachment JH-9).

1 **Q. COMBINING THE TWO METHODS, WHAT IS THE COST OF EQUITY**
2 **CAPITAL FOR VERIZON?**

3 A. The two estimates of the cost of equity capital produced a range for Verizon of 10.24 to
4 10.60 percent. I feel the best overall estimate is approximately the average of the
5 three-stage DCF and CAPM cost of equity estimates. The cost of equity capital that I
6 use in the WACC calculations is therefore **10.42** percent.

7
8 **VII. CAPITAL STRUCTURE AND THE WACC**

9
10 **Q. WHAT IS MEANT BY THE “CAPITAL STRUCTURE” OF A BUSINESS?**

11 A. Most American businesses are financed by a combination of equity (common stock)
12 and debt (including bonds and bank loans). The capital structure refers to the fraction
13 of debt and equity used to finance a business. In terms of the WACC formula
14 presented at the outset, the capital structure is determined by the financing weights, w_e
15 and w_d .

16 **Q. IS THE CAPITAL STRUCTURE RELATED TO THE RISK OF A BUSINESS?**

17 A. Yes. As discussed earlier, companies that face greater operating risk tend to take on
18 less debt.

1 **Q. HOW DO YOU ESTIMATE THE CAPITAL STRUCTURE FOR A**
2 **PARTICULAR BUSINESS?**

3 A. The goal is to estimate the long-run target financing weights that a rational, informed
4 management team would employ.³⁴ If there are companies participating in comparable
5 business activities, the accepted solution is to use their observed capital structure as the
6 starting point because it is difficult to estimate a company's true target capital structure.
7 In this case, however, the comparables are all riskier than the business activity in
8 question (the provision of unbundled network elements) because of the necessity to use
9 data that are only available at the holding company level.

10 Alan Shapiro states that,

11 [i]n multiproduct firms, the requirement that projects be of
12 homogeneous risk is more likely to be met for divisions than
13 for the company as a whole. This suggests that the use of a
14 divisional cost of capital may be valid in some cases in which
15 the use of a companywide cost of capital would be
16 inappropriate. Conglomerate firms that compete in a variety of
17 different product markets ... often estimate separate divisional
18 costs of capital that reflect both the differential risks and the
19 differential debt capacity of each division.

³⁴ Ross, Stephen A., Randolph W. Westerfield and Jeffrey Jaffe, *Corporate Finance*, Fourth Edition, Irwin, Chicago, 1996, pg. 441.

1 The estimation of these divisional costs of capital is tricky. All
2 the firm observes is its overall cost of capital, which is a
3 weighted average of its divisional costs of capital.³⁵

4 I performed my analysis using the holding company information because of the data
5 limitation.

6 **Q. WHAT ARE THE CAPITAL STRUCTURE WEIGHTS FOR YOUR SAMPLE**
7 **OF COMPANIES?**

8 A. The current capital structures for my sample of companies is shown in Attachment JH-
9 10. Notice that the comparison depends on whether book value or market value
10 weights are used. At this juncture, there remains a debate among academics,
11 practitioners, and forensic experts regarding the choice between book and market
12 weights. In traditional rate of return hearings, capital structure is typically presented in
13 terms of book value weights. The average book value debt weight for the sample
14 companies is 49 percent as of June 30, 2000. Verizon's own debt weight is 49 percent.
15 In terms of market value weight, however, the debt weight is lower. The average for
16 the full sample is 20 percent, while Verizon's debt weight is 26 percent. However,
17 market value debt weights of the holding companies probably understate the long-run
18 target debt weights in the capital structure of the network element leasing business, for
19 the reasons discussed in detail in Section VIII below. Consequently, in this case it is
20 inappropriate to rely solely on current market value capital structure weights of the
21 telephone holding companies when calculating the WACC for the network element

³⁵ Shapiro, Alan C., *Modern Corporate Finance*, Macmillan Publishing Company, 1990, pgs. 291-292.

1 leasing business. Therefore, I apply the WACC formula using both book and market
2 weights to establish a range.

3 **Q. WHAT CAPITAL STRUCTURE WEIGHTS DO YOU USE IN YOUR**
4 **SAMPLE?**

5 A. Given the dispersion in capital structure weights, I use the average weights in my
6 WACC calculations. Both book and market averages are employed to establish a
7 range.

8 **Q. GIVEN YOUR PRECEDING TESTIMONY, WHAT IS THE UPPER**
9 **BOUNDARY OF THE APPROPRIATE RANGE FOR THE WEIGHTED**
10 **AVERAGE COST OF CAPITAL FOR EACH OF THE TELEPHONE**
11 **COMPANIES FOR VERIZON?**

12 A. As the network element leasing business is less risky than the overall risk of a
13 telephone holding company, estimating a cost of capital using a market value capital
14 structure (which results in a cost of capital estimate for the telephone holding company
15 itself) will provide an upper bound estimate of the cost of capital for the network
16 element leasing business.

17 The table below computes the WACC from the estimates of the cost of debt, the
18 cost of equity and the capital structure developed in my preceding testimony using
19 market value capital structures.

Verizon's WACC Based On Average Market Capital Structure Weights

	<u>Weight</u>	<u>Rate</u>	<u>Weighted cost</u> ³⁶
Equity	0.80	10.42	8.34
Debt	0.20	7.86	1.57
Verizon's WACC			9.91

Q. WHAT IS THE LOWER BOUNDARY OF THE APPROPRIATE RANGE FOR THE WEIGHTED AVERAGE COST OF CAPITAL FOR VERIZON?

A. The table below computes the WACC from the estimates of the cost of debt, the cost of equity and the capital structure developed in my preceding testimony using book value capital structures.

Verizon's WACC Based On Average Book Capital Structure Weights

	<u>Weight</u>	<u>Rate</u>	<u>Weighted cost</u> ³⁷
Equity	0.51	10.42	5.32
Debt	0.49	7.86	3.85
Verizon's WACC			9.17

Q. OVERALL WHAT DO YOU CONCLUDE IS A FAIR ESTIMATE OF THE COST OF CAPITAL AS OF JUNE 30, 2000?

A. I believe a fair estimate is the midpoint of my range. Averaging 9.17 and 9.91, the midpoint comes to **9.54** percent for VZ-VA's provision of UNEs.

³⁶ As rounded.

³⁷ As rounded.

1 **Q WHAT IS THE CAPITAL STRUCTURE IMPLIED BY THIS MIDPOINT**
2 **COST OF CAPITAL ESTIMATE?**

3 A. The capital structure implied by the 9.54 percent cost of capital is **34.5% debt** and
4 **65.5% equity**.

5 **Q. IS THIS ESTIMATE OF THE COST OF CAPITAL FORWARD LOOKING?**

6 A. Yes. The cost of debt is estimated from the yields to maturity of each company's
7 bonds obtained from the Bond Guide, which represent the forward looking returns that
8 investors would expect to earn on these bonds.³⁸ The DCF model used for estimating
9 the cost of equity employs forward-looking growth projections made by analysts and
10 forecasting organizations. The CAPM model as I have employed it here uses current
11 U.S. Treasury bond rates as of the measurement date, which impound forward-looking
12 expectations, as one of its two return components. The CAPM model by necessity uses
13 some historical information to estimate a company's riskiness, through the calculation
14 of a beta, and can use either historical or forward-looking information to estimate the
15 market risk premium, which is assumed to generally prevail into the future. Regarding
16 these issues, I have considered forward-looking predicted BARRA betas and both
17 current research and Wall Street estimates regarding the forward-looking equity risk
18 premium.

19
20 **VIII. POTENTIAL UPWARD BIAS IN THE ESTIMATED COST OF CAPITAL**

1 **Q. IS THERE ANY REASON TO BELIEVE THAT THE COST OF CAPITAL**
2 **RANGE YOU HAVE CALCULATED IS ON THE HIGH SIDE?**

3 A. Yes. Modern diversified corporations, like Verizon and other telephone operating
4 companies operate dozens of different businesses, some of which are more risky than
5 others. Consequently, the operating risk of the corporation is a weighted average of the
6 risks of all the constituent businesses.

7 **Q. WHAT IS THE BUSINESS FOR WHICH THE COST OF CAPITAL IS BEING**
8 **ESTIMATED IN THIS CASE?**

9 A. The business for which the cost of capital is being estimated in this case is essentially
10 the business of “leasing” local exchange telephone network elements to retail
11 providers. This business should have relatively low risk compared to many of the risky
12 business endeavors being pursued by the telephone holding companies.

13 Verizon’s risky business undertakings include domestic wireless
14 communications service, electronic commerce services, undersea fiber-optic cable, and
15 publishing. In addition, Verizon is involved in international wireline and wireless
16 communications operations, investments and management contracts in the Americas,
17 Europe, Asia and the Pacific, extending to over 40 countries.

18 **Q. HAS VERIZON MADE COMMENTS TO THE PUBLIC REGARDING**
19 **BENEFITS TO BE DERIVED FROM THE PROVISION OF NETWORK**
20 **ELEMENTS TO COMPETITIVE LOCAL EXCHANGE COMPANIES?**

³⁸ Copeland, Tom, Tim Koller and Jack Murrin, *Valuation: Measuring and Managing the Value of Companies*, Wiley and McKinsey & Company, New York, NY, 1995, at p. 251.

1 A. Yes. Bell Atlantic stated in its mid-year 1999 Investor's Reference Guide that the
2 business of providing network elements "provides a unique opportunity to add new
3 revenues onto our platform *without significant incremental capital investment ...*"³⁹

4 **Q. WHAT RISKS ARE ASSOCIATED WITH THE BUSINESS OF "LEASING" OF**
5 **UNBUNDLED NETWORK ELEMENTS?**

6 A. There is still the risk of regulation itself. The rate of return a network is allowed to
7 earn depends on the outcome of proceedings such as this and remains somewhat
8 uncertain. That risk can be substantially reduced if this commission adopts
9 compensatory forward-looking pricing rules that tell investors that telephone holding
10 companies will have the opportunity to recover all efficiently-incurred costs on a
11 forward-looking basis. In addition, there remains some risk that consumers,
12 particularly business users, will bypass the network as other alternatives become
13 available.⁴⁰ These risks, however, are substantially less than the risks faced by
14 telephone holding companies' other businesses.

15 **Q. DO LOWER RISK BUSINESSES HAVE MORE DEBT IN THEIR OPTIMAL**
16 **CAPITAL STRUCTURES?**

17 A. Yes. Businesses that have lower risk are capable of supporting higher level of debts.

18 **Q. WHY CAN THEY SUPPORT HIGHER LEVELS OF DEBT?**

19 A. The riskiness of a business is determined by the volatility of its cash flows. From the
20 perspective of both equity and debt holders, volatile and uncertain cash flows increase

³⁹ Bell Atlantic Investment Reference Guide, Mid-Year 1999, p. 22 (emphasis added).

⁴⁰ As previously discussed in my testimony, however, under capital market theory competitive risks are not relevant for computing the cost of capital because they can be diversified away.

1 the risk that the business will be unable to make interest and principal payments in
2 accordance with the terms of the debt. Consequently, riskier businesses typically carry
3 lower amounts of debt to ensure that their debt obligations are met even under
4 unfavorable conditions.

5 Less risky businesses, i.e., businesses whose cash flows are not so volatile, can
6 increase the amount of debt in their capital structure because they are more certain to
7 be able to meet their debt service obligations.⁴¹

8 **Q. IS THERE A SIMPLE WAY TO DISTINGUISH THE BUSINESS OF LEASING**
9 **THE NETWORK FROM PROVIDING LOCAL SERVICE?**

10 A. Yes. Think of integrated telephone holding companies, for example Verizon, as being
11 composed of separate business units. One business unit owns the network and leases
12 network elements to all local service providers, including both competitors and the
13 telephone companies' other business units that are involved in the provision of local
14 service. Whereas those Verizon units involved in providing local service are in
15 businesses that (if prices are set appropriately in these proceedings) will be faced with
16 new competitors, the unit involved in leasing the network which all the competitors
17 need to use has virtual monopoly power and faces much less risk. For example, in its
18 May 15, 2000 "Telecom - Wireline" report, Morgan Stanley Dean Witter highlighted

⁴¹ Damodaran, for example, states that "[f]irms operating in businesses with volatile earnings and cash flows should use debt less than should otherwise similar firms with stable cash flows. For instance, regulated utilities in the United States have high leverage because regulation and the monopolistic nature of their businesses result in stable earnings and cash flows. At the other extreme, toy manufacturing firms such as Mattel can have large shifts in income from one year to another, based upon the commercial success or failure of a single toy. These firms should use leverage far less in meeting their funding needs." Damodaran A., "Applied Corporate Finance: A User's Manual," John Wiley & Sons, 1999, p. 231.

1 that in the first quarter of 2000 it "saw some renewed strength in local and access
2 revenues. Sales of value added services and *strong wholesale business more than*
3 *offset local competition.*" [emphasis added]

4 The sample of companies used in my analysis for which the cost of debt and
5 equity are estimated is composed of telephone holding companies. As stressed earlier,
6 these companies operate a variety of businesses, virtually all of which face a great deal
7 more operating risk than leasing UNEs. The greater risk of telephone holding
8 companies has been clearly recognized by financial analysts and the bond rating
9 agencies.⁴² The company to which the WACC should be applied, however, is one
10 which is involved exclusively in leasing network facilities. Under these circumstances,
11 using a higher debt weight than the current market value weights for the sample
12 companies is one way to take account of this problem. The higher debt weight may be
13 more representative of the target capital structure for the low-risk network element
14 leasing business.

15 **Q. HAVE YOU SEEN ANY INFORMATION PROVIDED TO THE PUBLIC**
16 **WHICH CONFIRMS THE REASONABLENESS OF YOUR COST OF**
17 **CAPITAL RANGE?**

18 A. Yes. Salomon Brothers in its January 1996 report "Regional Bell Operating
19 Companies—Opportunities Ring ... While Danger Calls" stated that,

⁴² The credit-rating agencies have noted the increasing risk-profile of the telephone holding companies in comparison to core telephone operations. For example, Standard & Poor's states in its Global Sector Review (November 1996, p. 288) that "[p]artially offsetting the solid position of its local exchange companies is the higher-risk profile of GTE's diversified activities, including its wireless and international ventures."

1 [b]ased on our estimates, the RBOCs currently have an average
2 weighted cost of capital of approximately 8.6%. In order to
3 value the RBOCs on a level playing field, we used the same
4 discount rate in each DCF. Specifically, we used a discount
5 rate of 10%, which we believe should be the minimum return
6 an investor would expect in order to entice him to invest in a
7 security, despite the fact this is slightly above the cost of
8 capital.

9 As part of its proposed merger with NYNEX, Verizon, then Bell Atlantic, submitted to
10 its shareholders a joint proxy statement/prospectus on September 16, 1996 in which
11 Bell Atlantic's investment advisor, Merrill Lynch, performed a DCF analysis of the
12 two companies' relative market values, estimating a discount rate in the range of **8% to**
13 **10%** for the telephone company portion of its portfolio of businesses.

14 **Q. ARE THERE MORE RECENT PUBLICLY-AVAILABLE COST OF CAPITAL**
15 **ESTIMATES WHICH CONFIRM THE REASONABLENESS OF YOUR COST**
16 **OF CAPITAL RANGE?**

17 A. Yes. In a fairness opinion for the SBC/Southern New England Telephone merger
18 proxy statement dated February 9, 1998, Salomon Smith Barney performed a business
19 segment breakdown in its DCF analysis. In valuing the telco business, Salomon Smith
20 Barney applied a WACC of **9.0% to 10.0%**. Salomon Smith Barney applied higher
21 ranges of 11.0% to 12.0% to the long-distance and cellular businesses.

22 In the Ameritech/SBC merger proxy statement dated October 15, 1998,
23 Salomon Smith Barney performed a DCF valuation analysis of the two companies as
24 part of its fairness opinion. The opinion broke down each company into its component

1 business segments and applied a separate discount rate to each segment. For the telco
2 business segments, excluding long distance, Salomon Smith Barney used a discount
3 rate reflecting a WACC of **8.75% to 9.75%**. Salomon Smith Barney used higher
4 ranges of 10.50% to 11.50% for long distance business segments, 10.00% to 11.00%
5 for cellular business segments, and 12.50% to 13.50% for PCS business segments.
6 This is consistent with my testimony and the observations of the ratings agencies and
7 the FCC that local telephone company operations are less risky than other
8 telecommunications segments and that telephone holding companies are engaged in
9 many of these riskier business activities.

10 Goldman Sachs also performed a DCF analysis for its fairness opinion for the
11 Ameritech/SBC merger. Goldman Sachs indicated that it used various discount rates
12 ranging from **8.5% to 11.5%**. Although the firm did not provide a detailed breakdown
13 of how it applied the rates, it is reasonable to assume that it was also attempting to
14 gauge the effect of the rates by business segment.

15 In Alltel Corp.'s Form S-4 which was filed with the SEC on March 24, 1999,
16 Merrill Lynch performed a DCF analysis of Aliant and Alltel on a stand-alone basis.
17 Merrill Lynch acted as the financial advisor to Aliant in connection with the merger
18 with Alltel. In its DCF analysis, Merrill Lynch used discount rates ranging from 10%
19 to 12% for both Aliant and Alltel. These rates apply to all business segments of Aliant
20 and Alltel which include substantial endeavors in businesses far riskier than either the
21 local exchange or network element leasing businesses.

1 In WorldCom Inc.'s Amendment No. 3 To Form S-4 which was filed with the
2 SEC on February 17, 2000, Salomon Smith Barney, acting as MCI WorldCom's
3 financial advisor, estimated the Sprint FON group segment DCF using a discount rate
4 reflecting a weighted average cost of capital for each of the company's business
5 segments. The weighted average cost of capital for Sprint FON's local segment was in
6 the range of **8.75% to 9.75%**, and the long distance segment was in the range of
7 9.25% to 10.25%. It also performed a DCF analysis of Sprint PCS Group and MCI
8 WorldCom, reflecting a weighted average cost of capital ranging from 10.5% to 11.5%
9 for Sprint PCS Group and 11.5% to 12.5% for MCI WorldCom. Warburg Dillon Read,
10 acting as Sprint's financial advisor in the merger, performed a DCF analysis on Sprint
11 FON group's local and long-distance telephone division. Warburg Dillon Read
12 assumed that the discount rates for Sprint's local telephone division ranged from **10%**
13 **to 11%** while the long distance telephone division ranged from 10.5% to 11.5%.

14 In the Bell Atlantic-GTE merger prospectus filed with the SEC on April 14,
15 1999, Bell Atlantic's financial advisors, Merrill Lynch and Bear Stearns, used a range
16 of discount rates from **8.5% to 10.5%** to determine the exchange ratios of Bell
17 Atlantic and GTE shares. Notably, Bell Atlantic's advisors performed an illustrative
18 valuation of the expected combination benefits where they discounted expected
19 incremental free cash flows using a discount rate of 9.5%, the midpoint of the discount
20 rate range from **7.5% to 11.5%**. In the same Bell Atlantic-GTE merger proxy
21 statement, GTE's financial advisor Salomon Smith Barney performed a five-year DCF
22 analysis of Bell Atlantic and GTE as part of its fairness opinion and assumed discount

1 rates ranging from **9.0% to 11.0%**. It is important to note that these rates are for the
2 entire Bell Atlantic holding company and include businesses that are far riskier than
3 leasing unbundled network elements.

4 Analyst reports also indicate that the costs of capital for various
5 telecommunications businesses are quite low. In its Industry Analysis report on
6 Telecommunication Services dated August 28, 1998, JP Morgan estimated the WACC
7 for the U.S. telecom sector for 1998 at **7.8%**. This report also shows that JP Morgan
8 estimated that the WACC for the telecom sector for the period 1995-2002 would stay
9 within the range of **7.6 to 7.8%**. In March 2000 Morgan Stanley Dean Witter used an
10 estimated cost of capital of 10% in its DCF valuation of ALLTEL.⁴³ In April 2000,
11 BHF-Bank used an 8.2% cost of equity and 7.7% WACC for valuing Deutsche
12 Telekom.⁴⁴

13 **Q. IN ITS 1990 REPRESRIPTION ORDER, THE FCC SET THE RATE OF**
14 **RETURN FOR INTERSTATE SERVICES OF LOCAL EXCHANGE**
15 **CARRIERS AT 11.25%. WHAT DO INTEREST RATE MOVEMENTS SINCE**
16 **THEN SUGGEST ABOUT THE APPROPRIATE CURRENT RATE?**

17 A. 30-year Treasury bond rates have fallen from 9.03% as
18 of September 4, 1990 to 5.58% as of July 25, 2001. This is a
19 decline of 345 basis points since the 11.25% rate was
20 prescribed. Similarly, 10-year Treasury bond rates have fallen
21 to 5.20% as of July 25, 2001. This decline in capital market

⁴³ Morgan Stanley Dean Witter, "Alltel Corporation", March 10, 2000, p. 4, and March 13, 2000, p. 3.

⁴⁴ BHF-Bank, "Deutsche Telekom", April 27, 2000, p. 6.